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| 09/926,280 | 01/09/2002 | Uif Bodin | 214280US2PCT | 1762 |
| 22850 | 7590 | 09/06/2005 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | YANG, LINA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2665 | |

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,280

Applicant(s)

BODIN, UIF

Examiner

Lina Yang

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 13-18 and 23-25 is/are rejected.
- 7) ☒ Claim(s) 4-12 and 19-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/9/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>1/16/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 2 is objected to because of the following informalities:

Please spell out "RIO", "ItRIO" and "WRED" recited in claim 2.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 14 recites the limitation "applying said method to a FIFO queue" on page 28 lines 19-20. However, there is no teaching of how to apply said method to a FIFO queue. Since FIFO has a totally different mechanism of queue management than the one described in claim 13, and the specification does not teach how this function is done, the disclosure fails to enable a person skilled in the art to make and use the claimed inventions as recited in claim 14.

Art Unit: 2665

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 is rejected under 35 U.S.C. 112, second paragraph.

Claim 2 recites the limitation "the same value" in the last line. There is insufficient antecedent basis for this limitation in the claim.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are:

(1)how to modify RIO, ItRIO;

(2)how to combine with WRED

Those steps are essential to generate "a plurality of threshold levels, for average queue length, are created, by applying different drop probabilities to each precedence level and by setting all maximum threshold levels to the same value".

Regarding claim 2, due to the nature of 35 U.S.C. 112 second paragraph issue as indicated above, no prior art rejection can be applied at this time.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

Art Unit: 2665

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351 (a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 13 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Clark et al. (IEEE/ACM TRANSACTIONS ON NETWORKING, VOL. 6, NO. 4, AUGUST 1998).

Regarding claim 13, Clark teaches a method of active queue management for handling prioritised traffic in a packet transmission system, adapted to provided differentiation between traffic originating from rate adaptive applications that respond to packet loss, in which traffic is assigned one, of at least a first and second, drop precedent level, namely in profile and out of profile, characterised by:

calculating an average queue length, avg-ql (page 367, III. B. *Differential Dropping in the Routers:RIO 2) Twin Algorithm in RIO*);

assigning minimum thresholds, min_th_in (min_in) and min_th_out (min_out), for in profile packets and out of profile packets respectively, and a maximum threshold, max_th (page 367, III. B. *Differential Dropping in the Routers:RIO 2) Twin Algorithm in RIO and Fig. 3(b)*);

retaining all packets with their initially assigned drop precedent levels while the average queue length is less than, or equal to, a threshold th_in (page 367, III. B. *Differential Dropping in the Routers:RIO 2) Twin Algorithm in RIO*);

Art Unit: 2665

assigning a drop probability to each packet, determined from the average queue length (page 367, *III. B. Differential Dropping in the Routers:RIO 2) Twin Algorithm in RIO*);

retaining all packets while avg_ql is less than th-in (page 367, *III. B. Differential Dropping in the Routers:RIO 2) Twin Algorithm in RIO*); and

dropping packets in accordance with their assigned drop probability (page 367, *III. B. Differential Dropping in the Routers:RIO 2) Twin Algorithm in RIO*);

and by max_p_out being greater than max_p_in, where max_p_out is the maximum drop probability of packets marked as out of profile and max_p_in is the maximum drop probability for packets marked as in profile (page 367, *III. B. Differential Dropping in the Routers:RIO 2) Twin Algorithm in RIO*).

Regarding claim 15, Clark further teaches

- dropping a packet if avg-ql, when the packet arrives, is $> \text{max-th}$ (page 367, *III. B. Differential Dropping in the Routers:RIO 2) Twin Algorithm in RIO and Fig. 3(b)*);

- for a packet tagged as in profile, calculating avg-ql-in, and, if avg-ql-in $> \text{th in}$ and $\text{min th in} < \text{avg-ql}$, calculating Pin and dropping, or retaining, said packet in accordance with the value of Pin (page 367, *III. B. Differential Dropping in the Routers:RIO 2) Twin Algorithm in RIO and Fig. 3(b)*);

- for a packet marked as out of profile, if $\text{min th out} < \text{avg-ql}$, calculating Pout, and dropping, or retaining, said packet in accordance with the value of Pout (page

Art Unit: 2665

367, III. B. Differential Dropping in the Routers: RIO 2) Twin Algorithm in RIO and Fig.

3(b)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 16 and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Clark et al. (IEEE/ACM TRANSACTIONS ON NETWORKING, VOL. 6, NO. 4, AUGUST 1998).

Regarding claim 16, Clark teaches a method of active queue management with two drop precedence levels, as stated in claim 13. Clark differs from the claimed invention in that from the claimed invention in that Clark does not specifically teach employing a plurality of drop precedence levels, greater than two, and deriving an average queue length for each drop precedence level. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a plurality of drop precedence levels, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Art Unit: 2665

Regarding claim 18, A method, as claimed in claim 16, characterised by three levels of drop precedence, and by calculating an average queue length for each level of drop precedence based on packets tagged with that level and packets tagged with a higher level of drop precedence.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Clark et al. (IEEE/ACM TRANSACTIONS ON NETWORKING, VOL. 6, NO. 4, AUGUST 1998) in view of Skirmont (US Patent No. 6,252,848 B1).

Regarding claim 17, Clark differs from the claimed invention in that Clark does not specifically teaches that setting max_th for each drop precedence level to the same value. However, Skirmont teaches setting max_th for each drop precedence level to the same value (col. 5 lines 44-58). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include setting max_th for each drop precedence level to the same value, as taught by Skirmont in the assembly of Clark in order to benefit system performance, avoid allowing some flows undermine system performance while other slows are exclusively penalized and provide advantages for implementation.

Art Unit: 2665

7. Claims 1, 3 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over by applicant's own admitted prior art (APA) in view of Clark et al. (IEEE/ACM TRANSACTIONS ON NETWORKING, VOL. 6, NO. 4, AUGUST 1998).

Regarding claim 1, the APA teaches a method (WRED) of active queue management, for handling prioritised traffic in a packet transmission system, adapted to provided differentiation between traffic originating from rate adaptive applications that respond to packet loss, in which traffic is assigned one, of at least two, drop precedent levels, characterised by preventing starvation of low prioritised traffic while (page 3 lines 17-19 in current specification), at the same time, preserving a strict hierarchy among precedence levels (page 3 lines 20-24 in current specification). The APA differs from the claimed invention in that APA does not specifically teach that WRED provides absolute differentiation of traffic. However, Clark teaches that RIO provides absolute differentiation of traffic (allocated capacity) (abstract). In addition, the APA further teaches that both RIO and WRED are found to offer an absolute quantifiable differentiation (page 2 lines 23-24 in current specification). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include provide absolute differentiation of traffic, as taught by Clark in the assembly of APA in order to allocate bandwidth to different users in a controlled and predictable way during network congestion.

Art Unit: 2665

Regarding claim 3, the APA further teaches providing absolute differentiation if prioritized traffic is fully controlled and relative differentiation in other cases (page 2 lines 23-24).

Regarding claim 23, the APA further teaches telecommunications system employs a method of active queue management (page 2 lines 13 and 17).

Regarding claim 24, Clark further teaches that the telecommunications system is an Internet (page 362, *I. Introduction*).

Regarding claim 25, Clark further teaches that the router for use with a telecommunications system employs the method of active queue management (page 363, *II.A. Overview*).

Allowable Subject Matter

8. Claims 6-12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2665

10. Claims 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lina Yang whose telephone number is (571)272-3151. The examiner can normally be reached on 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 517-273-8300..

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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